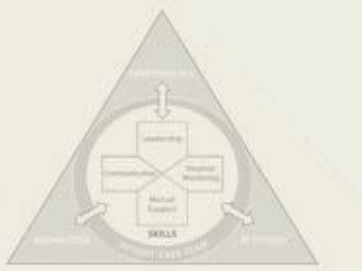


# MEASUREMENT



## SUBSECTIONS

- Measurement in TeamSTEPPS
- A Model of Training Evaluation
- Available Measures (Reactions, Learning, Behavior, Results)

**TIME:** 50 minutes



# INSTRUCTOR OUTLINE: MEASUREMENT

## Measurement



**Instructor Note:** This module presents information about how to measure the impact of TeamSTEPPS and the tools that are available to support evaluation. It is important that participants learn how to assess the effects of their TeamSTEPPS implementation so they can determine whether TeamSTEPPS is working and producing the desired outcomes.

This module is primarily a lecture. It presents a well-established approach for conducting training evaluation and describes the available measures and their uses. There is an exercise at the end of the module for individuals to apply what they have learned.

The Measurement module includes the content provided in the outline below. Instructors should use the information below to plan how the module will be taught within the time available.

	Content	Page #	Approx. Time
1.	Introduction	4	2 mins
2.	Kirkpatrick's Training Evaluation Model	5 - 6	8 mins
3.	Available Measures	7 - 21	30 mins
4.	Evaluating TeamSTEPPS Exercise	22 - 23	10 mins

**Additional Resources:** Below are additional resources you may wish to use to obtain additional information:

- Kirkpatrick, D.L. (1967). Evaluation of training. In R.L. Craig (Ed.). *Training and development handbook: a guide to human resource development*. New York: McGraw-Hill.
- Salas, E., Almeida, S.A., Salisbury, M., et al. (2009). What are the critical success factors for team training in health care? *Jt Comm J Qual Pat Saf* 35, 398–405.
- Weaver, S.J., Salas, E., & King, H. (2011). Twelve best practices for team training evaluation in health care. *Jt Comm J Qual Pat Saf* 37, 341–9.



### MODULE TIME:

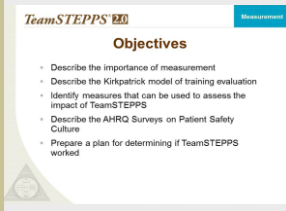
50 minutes



### MATERIALS:

- Evaluating TeamSTEPPS Worksheet

# OBJECTIVES



## Slide

### SAY:

Upon completion of this module, participants will be able to:

- Describe the importance of measurement;
- Describe the Kirkpatrick model of training evaluation;
- Identify measures that can be used to assess the impact of TeamSTEPPS;
- Describe the AHRQ Surveys on Patient Safety Culture; and
- Prepare a plan for determining if TeamSTEPPS worked.

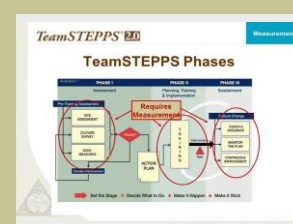
### SAY:

Measuring the impact of your TeamSTEPPS implementation is critical. Measurement enables you to answer questions such as (1) Did TeamSTEPPS work?; (2) Did TeamSTEPPS produce the expected outcomes?; (3) Was TeamSTEPPS worth implementing in my unit?; and (4) If TeamSTEPPS did not work or did not produce the expected outcomes, why not? Not only should you and your colleagues—as you collectively lead the charge to implement TeamSTEPPS—care about the answers to these questions, but so should your organization’s leadership.

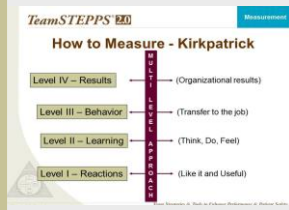
As shown in the slide, measurement is important across all phases of the TeamSTEPPS implementation process. The results of measurement provide many benefits, including:

- Helping you identify where there are quality improvement needs;
- Providing you with data to help generate leadership, stakeholder, and/or staff buy-in of your efforts;
- Assessing training needs;
- Providing information to drive the plans for how you will use and implement TeamSTEPPS;
- Providing an evaluation of the effectiveness of TeamSTEPPS training;
- Assessing how TeamSTEPPS affects staff attitudes, patient perceptions, and organizational culture; and
- Demonstrating successes and areas for continued improvement, which is important for adapting implementation plans.

The measures we will cover in this module will help you assess your TeamSTEPPS implementation across the TeamSTEPPS phases.



### Slide



Slide

**SAY:**

Kirkpatrick (1967) defined a multilevel model for evaluating the impact of training programs. This model continues to be widely used and regarded as a practical approach to training evaluation. When determining the effectiveness of any training intervention, Kirkpatrick advocated examining four different outcomes of training:

1. Level I – Reactions – Reactions are defined as participants' perceptions of the training. There are two types: (1) *affective* reactions, which are related to whether participants "liked" the training; and (2) *instrumentality* reactions, which are related to whether participants found the training "useful."
2. Level II – Learning – Learning is defined at three levels: (1) attitudes (feel), (2) knowledge (know), and (3) skills (do). Regarding attitudes, the basic question to be answered is, "Do participants feel differently as a result of training?" Regarding knowledge, the basic question to be answered is, "Do participants know something new as a result of training?" Regarding skills, the question is, "Can participants do something differently/new as a result of training?"
3. Level III – Behavior – Behavior is defined as to whether the new attitudes, knowledge, and/or skills are transferred to the job. In other words, it measures whether participants use what they learned in training on the job and whether that produces improved job performance.
4. Level IV – Results – Results are defined as organizational benefits that are produced from training. In the case of TeamSTEPPS, results include patient outcomes, such as infection rates and patient perceptions of care, and clinical process outcomes, such as number of structured handoffs used and staff perceptions of safety. The types of results depend on what the TeamSTEPPS intervention targeted.

### SAY:

TeamSTEPPS provides a number of useful measures for evaluating the impact of TeamSTEPPS. These measures are aligned with the Kirkpatrick model of training evaluation.

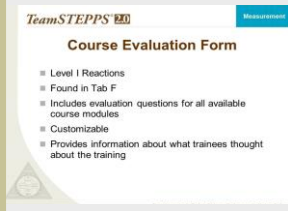
- **Reactions** - TeamSTEPPS Course Evaluation Form.
- **Learning** – TeamSTEPPS Teamwork Attitudes Questionnaire (T-TAQ) (Attitudes), TeamSTEPPS Learning Benchmarks (Knowledge), Team Performance Observation Tool (Skills), and TeamSTEPPS Teamwork Perceptions Questionnaire (T-TPQ) (Skills).
- **Behavior** - Team Performance Observation Tool, TeamSTEPPS Teamwork Perceptions Questionnaire (T-TPQ), and AHRQ Surveys on Patient Safety Culture tools.
- **Results** – Patient outcomes and clinical process measures, including AHRQ Surveys on Patient Safety Culture tools and AHRQ Patient Safety Indicators.

We will review these measures in more detail and provide information about where to access them.



### Slide

# REACTIONS: TEAMSTEPPS COURSE EVALUATION FORM



## Slide

### SAY:

Participant reactions tell you whether participants liked the course, the facilities, and the instructor, among other things. These types of reactions are referred to as ***affective reactions***. In addition, participant reactions can tell you whether participants found TeamSTEPPS useful and if they believe they can apply the information they have learned in their units. These types of reactions are referred to as ***instrumentality reactions***. Research has shown that participants who find training useful and report that they will use it on their jobs are more likely to do so. Participant reactions also provide information regarding:

- What participants will say about the course to others who may attend in the future; and
- Where the course could be improved in terms of what is taught and how it's taught.

If you plan to use a course evaluation form for continuing education credit purposes, please check with your continuing education provider to ensure that the form meets the specific requirements of the respective accreditation organization.

A customizable TeamSTEPPS Course Evaluation Form for assessing participant reactions can be found in Tab F. This form captures both affective and instrumentality reactions.



# LEARNING: TEAMSTEPPS TEAMWORK ATTITUDES QUESTIONNAIRE (T-TAQ)

## Measurement

### SAY:

As noted, the evaluation of learning accomplished through training can be in the form of assessing attitudes, knowledge, and skills.

One indication that training is effective is that participants' attitudes about the importance of teamwork change as a result of attending TeamSTEPPS training. To identify changes in attitudes, participant attitudes should be measured both before and after TeamSTEPPS training, with the expectation that participants' scores will be higher after training. This would be an indication of improved attitudes toward teamwork as a result of TeamSTEPPS training.

The TeamSTEPPS Teamwork Attitudes Questionnaire, or T-TAQ, found in Tab F, was designed to measure participant attitudes about the teamwork skills and behaviors taught in TeamSTEPPS. It has been tested on numerous health care professionals. A report documenting the T-TAQ's development, use, and interpretation can be found on the AHRQ website.

*For more information, go to:*

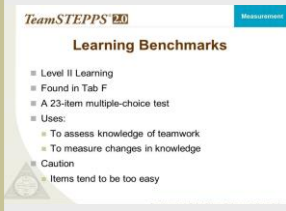
<http://teamstepps.ahrq.gov/abouttoolsmaterials.htm>

It is very **important** to note that, with the explosion of the patient safety movement and growing acceptance of the importance of teamwork in the delivery of safe care, health care professionals are likely to report positive attitudes toward teamwork regardless of having attended TeamSTEPPS training. Therefore, TeamSTEPPS recommends that you do not rely solely on measuring participant attitudes as an indication of learning.



## Slide

# LEARNING: TEAMSTEPPS LEARNING BENCHMARKS



## Slide

### SAY:

Another indication that training was effective is that participants know something new after participating in training. Similar to measuring attitude changes, measurement of participant knowledge would take place both before and after TeamSTEPPS training, using a knowledge test. The expectation would be that participants would score higher on the test after training.

The Learning Benchmarks knowledge test found in Tab F of the Instructor Manual can be used for this purpose. The test is a short, multiple choice exam that measures participant knowledge of the teamwork principles taught in TeamSTEPPS.

It is **important** to note that, just as attitude measures pose challenges, so do knowledge measures. TeamSTEPPS has found that despite careful construction of the Learning Benchmarks, these items tend to be easy, and individuals are often able to answer the items correctly without participating in TeamSTEPPS training.

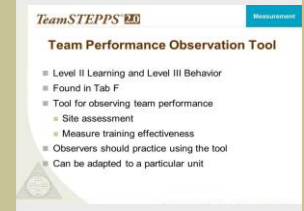
### SAY:

The third indication that training was effective in terms of participant learning is that participants can do something new after participating in training. Similar to measuring attitudes and knowledge, you would expect that if you observed participant behavior in a simulation after TeamSTEPPS training, participants would behave quite differently. For example, if you trained and implemented briefs, call-outs, and check-backs during trauma resuscitation as your TeamSTEPPS intervention, you might test the trauma team by developing scenarios that could be delivered using human patient simulators to determine if learning occurred. Observing the trauma team on the job as the team responds to an actual trauma resuscitation could also be an indication of learning; but under the Kirkpatrick hierarchy this is considered a measure of behavior—learning transferred to the actual job.

The Team Performance Observation Tool is a customizable tool that can be found in Tab F of the Instructor Manual. This tool can be used as a guide when observing team performance.

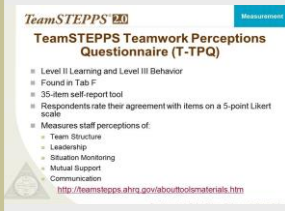
The Team Performance Observation Tool included in TeamSTEPPS is generic, meaning it is not designed to focus on any particular clinical unit. Therefore, TeamSTEPPS recommends that individuals:

- Customize the observation form to the clinical unit of interest.
- Practice using the tool prior to conducting observations. It is important that anyone acting as an observer use the tool in the same way so observations are accurate.
- Revise the observation tool as necessary so that information is clear to all observers.



### Slide

# LEARNING: TEAMSTEPPS TEAMWORK PERCEPTIONS QUESTIONNAIRE (T-TPQ)



## Slide

### SAY:

The TeamSTEPPS Teamwork Perceptions Questionnaire, or T-TPQ, can also be used to measure the learning of skills by training participants. The T-TPQ is completed by individual members of the team. In this measure, individuals report their perceptions regarding the effectiveness of the teamwork within the unit in which they work. A copy of the T-TPQ is provided in Tab F. A detailed guide for using and interpreting the T-TPQ is available on AHRQ's website.

*For more information, go to:*

<http://teamstepps.ahrq.gov/abouttoolsmaterials.htm>

### SAY:

It is important to measure whether the information learned during training is transferred to the job. Two important environmental factors for producing transfer are:

1. Whether there is an opportunity to use the new TeamSTEPPS tools or strategies on the job; and
2. Whether use of the TeamSTEPPS tools and strategies is valued and reinforced.

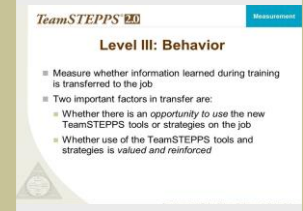
Let's consider an example.

### *Example:*

As part of a pediatric ICU's efforts to improve teamwork within the unit, all nurses are trained on the use of SBAR for presenting patient information to physicians. However, the physician group decides not to attend training. Shortly after implementing the SBAR strategy, a nurse calls the on-call physician about a concerning patient on the unit. She begins to present the patient's situation and background, but before she can complete her SBAR report, the physician jumps in and says, "Forget that SBAR stuff; just tell me what I need to know!"

## DISCUSSION

- Was the use of SBAR valued and reinforced?
- What do you think the nurse should do?
- Will the nurse use SBAR in the future?
- What other factors can you think of that are important for ensuring that skills learned in TeamSTEPPS training transfer to the job?
  - Aligning training objectives with organizational goals
  - Providing organizational support for the training initiative
  - Ensuring that frontline care leaders are on board
  - Using measurement to determine the effectiveness of the program in terms of whether skills are being used on the job



### Slide



Slide

**SAY:**

There are tools available for assessing the transfer of participants' learning to their jobs. These include:

- The Team Performance Observation Tool;
- The TeamSTEPPS Teamwork Perceptions Questionnaire (T-TPQ); and
- AHRQ Surveys on Patient Safety Culture.

We have already discussed the Team Performance Observation Tool and the T-TPQ, as these can also be used to measure the learning of new teamwork skills. The AHRQ Surveys on Patient Safety Culture can be used to assess both behaviors and results. We will first discuss a few other results measures, and then focus our attention on a more detailed discussion of the surveys.

### SAY:

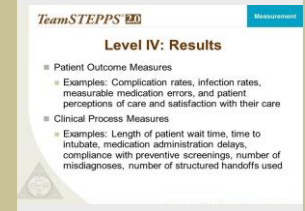
The final level of training evaluation in the Kirkpatrick hierarchy is results. As we discussed earlier, this level of evaluation provides an assessment of the organizational benefits produced from training.

It is important to note that this level of evaluation is difficult to assess, in that any number of organizational changes, initiatives, and/or interventions could contribute to organizational results. However, for evaluating TeamSTEPPS, selecting measures that align with the teamwork issue being addressed by TeamSTEPPS will help ensure that the results can be linked to the training intervention.

Results measures include:

- **Patient outcome measures**, such as complication rates, infection rates, measurable medication errors, and the like, as well as patient experience measures such as the Hospital Consumer Assessment of Healthcare Providers and Systems (H-CAHPS).
- **Clinical process measures**, such as length of patient wait time, time to intubate, medication administration delays, compliance with preventive screenings, number of misdiagnoses, number of structured handoffs used, and staff perceptions of safety as measured by the AHRQ Surveys on Patient Safety Culture.

It should be noted that health care facilities already routinely collect many clinical quality and safety measures that can be used to measure organizational results. These include, for example, the Joint Commission ORYX quality measures, patient safety event databases, and staff and patient satisfaction measures.



### Slide



## Slide

**SAY:**

As noted, measures that assess perceptions of safety are a type of results measure. AHRQ offers a suite of free, easy-to-use surveys for assessing patient safety culture. Patient safety culture assessment tools are available for:

- Hospitals,  
([AHRQ Quality Patient Safety](#))
- Nursing homes,  
([AHRQ Professional Patient Safety](#))
- Medical offices, and  
([AHRQ Patient Safety Culture](#))
- Community pharmacies.  
([AHRQ Patient Safety Community Pharmacies](#))

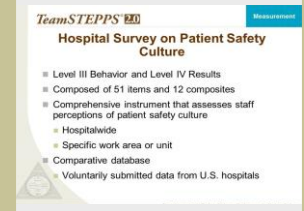
Because the Hospital Survey on Patient Safety Culture is a commonly used culture survey, we will use this as an example and provide more detailed information about this assessment.



### SAY:

In 2004, AHRQ released the Hospital Survey on Patient Safety Culture, a staff survey designed to help hospitals assess the culture of safety in their institutions. Since then, hundreds of hospitals across the United States and internationally have implemented the survey.

In response to requests from hospitals interested in comparing their safety culture survey results to other hospitals, AHRQ funded the development of a comparative database for the survey in 2006. The database is composed of voluntarily submitted data from U.S. hospitals that administered the survey. Comparative databases have been produced since 2007.



### Slide

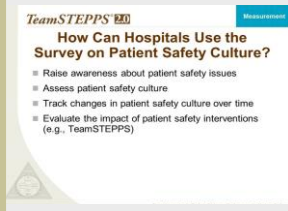


### DISCUSSION

- Have any of you used the Hospital Survey on Patient Safety Culture in your institution?
- Can you describe how you used the survey results?
- Do you have any lessons learned you would like to share?

Continued...

## HOSPITAL SURVEY ON PATIENT SAFETY CULTURE (Continued)



### Slide

#### SAY:

The Hospital Survey on Patient Safety Culture has a number of uses, including:

- Raising awareness about patient safety issues;
- Assessing patient safety culture;
- Tracking changes in patient safety culture over time; and
- Evaluating the impact of patient safety interventions.

The hospital survey can be used to assess whether TeamSTEPPS has a positive impact on the organization's patient safety culture. If TeamSTEPPS is effective, survey scores should increase after TeamSTEPPS tools and strategies have been implemented. Such a result would be considered an organizational outcome or result of the training (i.e., Level IV in the Kirkpatrick hierarchy).

Continued...

# HOSPITAL SURVEY ON PATIENT SAFETY CULTURE (Continued)

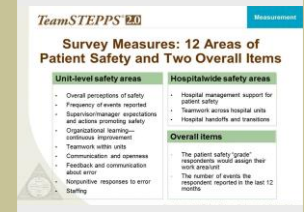
## Measurement

### SAY:

The hospital survey includes 51 items:

- Nine variables that are important to patient safety at the unit or department level;
- Three variables related to organizationwide patient safety; and
- Two overall judgments about the organization.

The survey takes approximately 10 minutes to complete. Most of the items use Agree/Disagree or Never/Always response categories, making them easy to answer. Room for written comments is provided at the end of the survey.



## Slide

Continued...



Slide

**SAY:**

Each survey on patient safety culture has an accompanying toolkit that contains the following materials:

- Survey forms;
- Survey items and dimensions;
- A *Survey User's Guide* that provides step-by-step instructions on how to select a sample, administer the survey, obtain high response rates, and analyze and report results; and
- A *survey feedback report template* in Microsoft® PowerPoint, which can be customized to display survey results to administrators and staff throughout the organization and for presentation purposes.

In addition, there is a *data entry and analysis tool* that works with Microsoft® Excel and makes it easy to input your individual-level data from the survey. The tool then automatically creates tables and graphs to display your survey results.

*To request the tool for the hospital, medical office, or nursing home survey, email:*

[DatabasesOnSafetyCulture@westat.com](mailto:DatabasesOnSafetyCulture@westat.com).

If you have questions about the Surveys on Patient Safety Culture, or need technical assistance, you can request help by email to

[SafetyCultureSurveys@westat.com](mailto:SafetyCultureSurveys@westat.com) or  
[DatabasesOnSafetyCulture@westat.com](mailto:DatabasesOnSafetyCulture@westat.com).

### SAY:

Another tool for assessing the impact of training on organizational results is the AHRQ Patient Safety Indicators (PSIs). The PSIs are a set of measures that provide information about potential in-hospital complications and adverse events (outcomes) following surgeries, procedures, and childbirth. This information is based on routinely collected hospital discharge administrative data.

The PSIs can be used to help hospitals identify potential adverse events that might require further study. The PSIs also include indicators for complications occurring in-hospital that may represent patient safety events. Such events can be mitigated with the implementation of TeamSTEPPS tools and strategies.

The PSIs are available on AHRQ's website.

*For more information, go to:*

[http://www.qualityindicators.ahrq.gov/modules/psi\\_resources.aspx](http://www.qualityindicators.ahrq.gov/modules/psi_resources.aspx)



### Slide

## EXERCISE: EVALUATING TEAMSTEPS

## TeamSTEPS 2.0

Measurement

## Evaluating TeamSTEPS Exercise

Three nurses and the infection control officer at a 16-bed post-surgical intensive care unit attend the 2-day TeamSTEPS Master Training course. During the implementation planning session, the team agrees that hand hygiene compliance is a major problem, especially physician compliance. As a result, the unit has a relatively high surgical site infection rate. The team decides to use the CUS and Two-Challenge Rule tools as strategies to address this issue. As part of their implementation, they train all the nurses and the employed physician staff on these two tools, but struggle with getting surgeons who are not employed by the hospital to participate. Once the training is complete, they decide to launch the implementation of CUS and the Two-Challenge Rule.

## Slide



## TIME:

10 minutes



## MATERIALS:

- Evaluating TeamSTEPS Worksheet

## SAY:

Now that we have reviewed the four levels of the Kirkpatrick model of training evaluation and discussed available measures for each, we will use a scenario to apply what you've learned. Our scenario follows:

Three nurses and the infection control officer from a 16-bed postsurgical intensive care unit attend the 2-day TeamSTEPS Master Training course. During the implementation planning session, the team agrees that hand hygiene compliance has been a major problem, especially physician compliance. As a result, the unit has a relatively high surgical site infection rate. The team decides to use the CUS and Two-Challenge Rule tools as strategies to address this issue. As part of their implementation, they train all the nurses and the employed physician staff on these two tools, but struggle with getting surgeons who are not employed by the hospital to participate. Once the training is complete, they decide to launch the implementation of CUS and the Two-Challenge Rule.

Break into small groups and identify (1) one or two measures you can use to assess whether your TeamSTEPS intervention – CUS and the Two-Challenge Rule – transfers to the unit; and (2) one or two measures to determine if the use of CUS and the Two-Challenge Rule affects patient outcomes.

## DO:

After a few minutes, reconvene the participants and ask some groups to report on their identified measures, using the questions presented on the following page.



**DISCUSSION:** Go to next page >

Continued...

## EXERCISE: EVALUATING TEAMSTEPPS (Continued)

### Measurement



#### DISCUSSION:

- Which measure or measures did you identify for assessing whether instruction about CUS and the Two-Challenge Rule transfers to this unit's work environment?
  - Why did you choose the identified measures?
- What organizational barriers might interfere with successful training transfer and how can these barriers be addressed?
- Which measure or measures did you identify for determining whether CUS and the Two-Challenge Rule affect patient outcomes?
  - Why did you choose the identified measures?